

WHAT IS CLAIMED IS:

1 **1.** A method for processing and reusing gray water for flushing
2 a toilet bowl, comprising the following steps:

- 3 a) filtering said gray water to provide filtered water,
4 b) collecting said filtered water in a processing tank,
5 c) processing said filtered water by anodically oxidizing
6 said filtered water in said processing tank to provide
7 processed water, and
8 d) using said processed water for flushing said toilet
9 bowl in a toilet.

1 **2.** The method of claim 1, wherein said filtering step
2 comprises a coarse filtering operation and a fine filtering
3 operation for removing dirt, coloring agents, and odor
4 causing agents from said gray water.

1 **3.** The method of claim 2, wherein said fine filtering is
2 performed in said processing tank and said coarse filtering
3 is performed outside said processing tank.

1 **4.** The method of claim 3, further comprising using an
2 exchangeable, externally accessible fine filter in said
3 processing tank.

1 **5.** The method of claim 3, further comprising using an
2 exchangeable, externally accessible coarse filter in a
3 lavatory basin or next to a lavatory basin.

- 1 6. The method of claim 1, wherein said step of anodically
2 oxidizing is performed to such an extent that germ growth
3 is prevented in or on any component of a water distribution
4 system through which said processed water is distributed.
- 1 7. The method of claim 1, further comprising detecting through
2 a sensor at least one filling level in said processing tank
3 to produce a control signal for controlling a water flow.
- 1 8. The method of claim 1, further comprising providing an
2 overflow discharge in said processing tank and feeding said
3 overflow discharge into a gray water collecting conduit.
- 1 9. The method of claim 8, further comprising leading said gray
2 water collecting conduit into an outboard draining mast or
3 device.
- 1 10. The method of claim 8, further comprising leading said gray
2 water collecting conduit into a collecting container near
3 a wastewater collecting tank.
- 1 11. the method of claim 10, further comprising pressurizing
2 said gray water and passing pressurized gray water through
3 spray nozzles for rinsing said wastewater tank and other
4 system components.
- 1 12. The method of claim 7, further comprising detecting said at
2 least one filling level as a minimum filling level,
3 producing said control signal as a minimum level control

4 signal for controlling a fresh water supply faucet of a
5 lavatory basin in a toilet for replenishing water in said
6 processing tank to a medium filling level from a fresh
7 water supply.

1 13. The method of claim 12, further comprising sensing an
2 unoccupied status of said toilet to provide an unoccupied
3 control signal, and automatically opening said fresh water
4 faucet only in response to said minimum level control
5 signal and in response to said unoccupied control signal.

1 14. The method of claim 12, further comprising using an
2 infrared detector and a toilet door switch for producing an
3 "occupied" signal to disable said automatic opening of said
4 fresh water faucet when said toilet is occupied.

1 15. The method of claim 1, further comprising monitoring and
2 controlling all system functions, status characteristics
3 and operations through a central processing unit and
4 respective sensors.

1 16. The method of claim 15, further comprising presetting in
2 said central processing unit a defined temperature range
3 for water passing through a faucet in said lavatory or
4 toilet.

1 17. The method of claim 1, further comprising sensing a
2 plurality of filling levels including a maximum filling
3 level and a minimum filling level in said processing tank

4 to produce respective control signals for controlling the
5 withdrawal of processed water from said processing tank so
6 that more processed water is withdrawn from said processing
7 tank in response to a higher filling level signal and less
8 processed water is withdrawn from said processing tank in
9 response to a lower filling level signal.

1 **18.** The method of claim 1, further comprising sensing a
2 plurality of filling levels including a high filling level
3 and a low filling level in said processing tank to produce
4 respective high filling level and low filling level control
5 signals for controlling a fresh water supply faucet of a
6 lavatory basin in such a way that a larger fresh water
7 volume is supplied through said faucet and lavatory basin
8 into said processing tank in response to said low filling
9 level signal and a smaller fresh water volume is supplied
10 through said faucet and lavatory basin into said processing
11 tank in response to said high filling level control signal.

1 **19.** An apparatus for processing and reusing gray water, said
2 apparatus comprising:
3 a) at least one filter having a filter inlet connected to
4 a source of said gray water, and a filter outlet,
5 b) a processing tank having an inlet connected to said
6 filter outlet,
7 c) means for anodically oxidizing filtered water in said
8 processing tank to provide processed, oxidized water,
9 and

10 d) a pump connected with a pump inlet to said processing
11 tank, an excess pressure valve connected to an outlet
12 of said pump, at least one rinsing spray nozzle
13 installed in a toilet bowl and connected to said
14 excess pressure valve for rinsing said toilet bowl in
15 response to a generated control signal for a
16 predetermined time interval at the end of which said
17 pump is automatically switched off and said excess
18 pressure valve is closed again.

1 20. The apparatus of claim 19, wherein said pump is a rotary
2 pump.

1 21. The apparatus of claim 19, wherein said pump comprises a
2 cylinder and a piston in said cylinder, said apparatus
3 further comprising a detector positioned for detecting an
4 end position of said piston indicating that processed water
5 in said cylinder has been discharged, said detecting
6 providing a control signal, a motor responsive to said
7 control signal for driving said piston back into a starting
8 position, whereby processed water is sucked into said
9 cylinder for a next toilet bowl rinse.

1 22. The apparatus of claim 19, further comprising a central
2 control unit, sensors for providing status signals to said
3 central control unit, at least one first power supply for
4 said pump, a faucet for supplying fresh water to a lavatory
5 basin, at least one second power supply for a faucet
6 control, a suction device connected to said toilet bowl,

and at least one third power supply for said suction device, and wherein said central control unit controls said first, second and third power supplies in response to said control signals.

23. The apparatus of claim 22, further comprising a communication area network (CANBUS) to which said central control unit is connected for communicating with other systems.

24. The apparatus of claim 19, further comprising separate conduits for freshwater, gray water and waste water, and wherein a direct connection between said conduits is avoided.

25. The apparatus of claim 19, installed in an aircraft.